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## Spontaneous breaking of diffeomorphism invariance in conformally reduced quantum gravity

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We study the spontaneous breaking of diffeomorphism invariance using the proper-time non-perturbative flow equation in quantum gravity. In particular, we analyze the structure of the UV critical manifold of conformally reduced Einstein-Hilbert theory and study the occurrence of a non-trivial minimum for the conformal factor at Planckian energies. We argue that our result can be interpreted as the occurrence of a dynamically generated minimal length in quantum gravity.

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